

Notic of All wability	Application No.	Applicant(s)	
	09/588,549	OKUMURA ET AL.	
	Examiner	Art Unit	
	Chih-Cheng Glen Kao	2882	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to 9/19/03.
2. ☒ The allowed claim(s) is/are 1-5,13-15,30,33 and 35.
3. ☒ The drawings filed on 13 February 2003 are accepted by the Examiner.
4. ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
 - a) ☒ All b) ☐ Some* c) ☐ None of the:
 1. ☒ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).
 - * Certified copies not received: _____.
5. ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application) since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.
 - (a) ☐ The translation of the foreign language provisional application has been received.
6. ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121 since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application. **THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.**

7. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.
8. ☐ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.
 - (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review (PTO-948) attached
 - 1) ☐ hereto or 2) ☐ to Paper No. _____.
 - (b) ☐ including changes required by the proposed drawing correction filed _____, which has been approved by the Examiner.
 - (c) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No. _____.

Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the margin according to 37 CFR 1.121(d).

9. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

Attachment(s)

- | | |
|--|---|
| 1 <input type="checkbox"/> Notice of References Cited (PTO-892) | 5 <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 2 <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 6 <input type="checkbox"/> Interview Summary (PTO-413), Paper No. _____. |
| 3 <input type="checkbox"/> Information Disclosure Statements (PTO-1449 or PTO/SB/08), Paper No. _____ | 7 <input checked="" type="checkbox"/> Examiner's Amendment/Comment |
| 4 <input type="checkbox"/> Examiner's Comment Regarding Requirement for Deposit of Biological Material | 8 <input checked="" type="checkbox"/> Examiner's Statement of Reasons for Allowance |
| | 9 <input type="checkbox"/> Other _____ |

EXAMINER'S AMENDMENT

1. An examiner's amendment to the record appears below. Should the changes and/or additions be unacceptable to applicant, an amendment may be filed as provided by 37 CFR 1.312. To ensure consideration of such an amendment, it MUST be submitted no later than the payment of the issue fee.

Authorization for this examiner's amendment was given in a telephone interview with Carole Quinn on January 15, 2004.

2. The application has been amended as follows:

In claim 1, line 2; insert - -a- - before "light"

In claim 1, line 6; insert a comma after "light"

In claim 1, line 10; in the phrase "the respective"; delete "the"

In claim 1, line 13; replace "angles" with - -magnitudes- -

In claim 13, line 2; insert - -a- - before "light"

In claim 13, line 5; insert a comma before "traveling"

In claim 13, line 11; insert a comma before "and slope"

In claim 13, line 11; replace "angles" with - -magnitudes- -

In claim 13, line 12; replace "angles" with - -magnitudes- -

In claim 13, line 14; replace "angles" with - -magnitudes- -

In claim 14, line 2; replace "angles" with - -magnitudes- -

In claim 30, line 6, insert - -a- - before "light"

In claim 30, line 11; insert a comma after "light"

Art Unit: 2882

In claim 30, line 15, in the phrase “the respective”; delete “the”

In claim 30, line 18; replace “angles” with - -magnitudes- -

In claim 33, line 6; insert - -a- - before “light”

In claim 33, line 9; insert a comma before “traveling”

In claim 33, line 12; delete the period after “passed”

In claim 33, line 15; insert a comma before “and slope”

In claim 33, line 15; replace “angles” with - -magnitudes- -

In claim 33, line 16; replace “angles” with - -magnitudes- -

In claim 33, line 18; replace “angles” with - -magnitudes- -

In claim 35, line 6; insert - -a- - before “light”

In claim 35, line 9; insert a comma after “so that light”

In claim 35, line 11; insert a comma after “first region”

In claim 35, line 12; insert a comma after “so that the light”

In claim 35, line 13; insert a comma after “second region”

In claim 35, line 15; delete the period at the end of the sentence

In claim 35, line 15, after “radial direction”; insert the following

- -wherein in said optical scale the scale slits of said first and second regions are comprised of grooves of V-shaped cross section, and slope magnitudes of the V-shaped cross section in the first section are different from slope magnitudes of the V-shaped cross section in the second region, and

Art Unit: 2882

wherein slope magnitudes are different from each other between the grooves of the V-shaped cross section of the scale slits in said first and second regions to form four beams having different phases.- -

Allowable Subject Matter

3. Claims 1-5, 13-15, 30, 33, and 35 are allowed.
4. The following is an examiner's statement of reasons for allowance:

With regards to claims 1 and 30, prior art does not disclose or fairly suggest an optical encoder including a dividing element comprising repetitions of V-grooves, each having two planes of mutually different slope magnitudes, juxtaposed at a predetermined pitch to form four beams having different phases arranged for reception by four respective light-receiving elements essentially in a line, in combination with all the limitations in each respective claim. Claims 2-5 are allowed by virtue of their dependency.

With regards to claims 13, 33, and 35, prior art does not disclose or fairly suggest an optical encoder including slope magnitudes of grooves of V-shaped cross section in a first region different from slope magnitudes of V-shaped cross section in a second region and wherein slope magnitudes are different from each other between grooves in the first and second regions to form four beams having different phases, in combination with all the limitations in each respective claim. Claims 14 and 15 are allowed by virtue of their dependency.

Art Unit: 2882

Conclusion

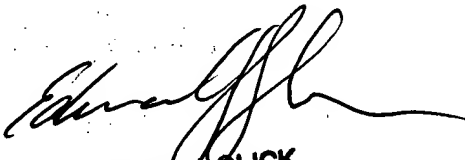
Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Chih-Cheng Glen Kao whose telephone number is (571) 272-2492. The examiner can normally be reached on M - F (9 am to 5 pm).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Ed Glick can be reached on (571) 272-2490. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9306.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0956.

gk


EDWARD J. GLICK
SUPERVISORY PATENT EXAMINER